

METHOD FOR VAPOR GROWTH OF GALLIUM NITRIDE COMPOUND SEMICONDUCTOR

Patent number: JP63188938
Publication date: 1988-08-04
Inventor: MANABE KATSUhide; others: 04
Applicant: TOYODA GOSEI CO LTD; others: 01
Classification:
- International: H01L21/205; H01L33/00
- european:
Application number: JP19870021126 19870131
Priority number(s):

Abstract of JP63188938

PURPOSE: To realize the vapor growth of a gallium nitride compound semiconductor thin film by a method wherein a buffer layer composed of aluminum nitride is grown on an a-plane of a sapphire substrate.

CONSTITUTION: A single-crystal sapphire substrate 24, which has been cleaned by an organic cleaning method and a heat treatment and whose main plane is an a-plane, is mounted on a susceptor; the sapphire substrate 24 is vapor-etched while H₂ is flowing into a reaction chamber through a first reaction-gas pipe 25 and a second reaction-gas pipe 26. Then, after the temperature has been lowered, the substrate is heat-treated while H₂, NH₃ and trimethylaluminum are fed through the first reaction-gas pipe 25. During this heat treatment, a buffer layer 30 composed of AlN is formed. Because a gallium nitride compound semiconductor thin film is formed vapor growth on this buffer layer, the crystallinity is improved and it becomes easy to supply the sapphire substrate.

